

## The lysianassid genus *Pseudambasia* in Australian waters (Crustacea, Amphipoda, Lysianassidae, Lysianassinae)

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### Abstract

*Pseudambasia* appears to be an Indo-West Pacific endemic, comprising mostly tropical and temperate species but also one from the New Zealand subantarctic. In this paper the genus *Pseudambasia* Stephensen is diagnosed against all other genera of the Lysianassinae. Six new species of *Pseudambasia* (*P. dartnalli* sp. nov.; *P. lochi* sp. nov.; *P. ponderi* sp. nov.; *P. poorei* sp. nov.; *P. sheardi* sp. nov.; and *P. springthorpei* sp. nov.) are described from Australian waters.

**Key words:** Crustacea, Amphipoda, Lysianassidae, Lysianassinae, *Pseudambasia*, taxonomy, new species, Australia

### Introduction

*Pseudambasia* is a well defined Indo-West Pacific genus that appears to be common and widespread in the lower intertidal and shallow subtidal environments. There are currently five species in the literature: *P. acuticaudata* (Ledoyer, 1984) from New Caledonia (Ledoyer 1984), the Austral Islands (Lowry & Stoddart 1994), Papua New Guinea (Lowry & Stoddart 1995) and the Great Barrier Reef (Lowry & Stoddart 2009); *P. indentata* (Ledoyer, 1986) from Madagascar; *P. kalaupapa* Longenecker & Bolick, 2007 from Hawaii; *P. nui* (Myers, 1985) from Fiji (Myers 1985), the Cook Islands and the Society Islands (Myers 1990); and *P. rossii* (Stephensen, 1927) from the New Zealand subantarctic (Stephensen, 1927, Lowry & Stoddart, 1983). In this paper we describe six new species from Australia, bringing the total number of described species in the genus to eleven.

### Material and methods

The descriptions were generated from a DELTA database (Dallwitz 2010) to the lysianassine genera and species of the world. The bold parts of the descriptions are diagnostic characters which distinguish each taxon in at least two respects from every other taxon. Material is lodged in the Australian Museum, Sydney (AM) and Museum Victoria, Melbourne (NMV). Standard abbreviations on the plates are: A, antenna; E, epistome; EP, epimeron; G, gnathopod; H, head; LB, labium; MD, mandible; MX, maxilla; MP, maxilliped; P, pereopod; T, telson; U, uropod; L, left; R, right.

### *Pseudambasia* Stephensen, 1927

*Pseudambasia* Stephensen, 1927: 305. Barnard & Karaman, 1991: 522. Lowry & Stoddart, 1995: 113.

**Type species.** *Pseudambasia bipartita* Stephensen, 1927, monotypy (= junior subjective synonym of *Parambasia rossii* Stephensen, 1927).

**Diagnosis.** Antenna 2 peduncular article 3 elongate (length 3 – 3.6 × breadth), geniculate between articles 3

and 4. Maxilla 1 inner plate without apical setae. Mandible left lacinia mobilis absent, palp attached slightly to extremely proximally. Labium without inner plates. Gnathopod 1 sexually dimorphic, simple or weakly to strongly subchelate. Urosomites 2–3 coalesced. Telson entire.

**Included species.** *Pseudambasia* includes 11 species: *P. acuticaudata* (Ledoyer, 1984); *P. dartnalli* sp. nov.; *P. indentata* (Ledoyer, 1986); *P. kalaupapa* Longenecker & Bolick, 2007; *P. lochi* sp. nov.; *P. nui* (Myers, 1985); *P. ponderi* sp. nov.; *P. poorei* sp. nov.; *P. rossii* (Stephensen, 1927); *P. sheardi* sp. nov.; *P. springthorpei* sp. nov.

**Remarks.** The type taxon of the genus *Parambasia*, *P. forbesii* Walker & Scott, 1903, from Abd-el-Kuri, may be part of this species complex, but important diagnostic characters for the taxon are not known and the type material is lost (see Lowry & Stoddart 1995, Barnard & Karaman 1991). Until such time as new material of this species is discovered and a neotype can be designated, the name *Parambasia* must be treated as dubious. See Lowry and Stoddart (1995) for further remarks.

*Pseudambasia* differs from other lysianassids by a combination of geniculate antenna 2, no well-developed apical setae on the inner plate of maxilla 1, sexually dimorphic subchelate gnathopod 1 and coalesced urosomites 2–3. It may be related to the highly derived genus *Azotostoma* (which has peculiar mouthparts and non-coalesced urosomites). *Pseudambasia* is also similar to *Kakanui* Lowry and Stoddart (1983), but *Kakanui* has well-developed apical robust setae on the maxilla 1 palp and free urosomites.

Some species of *Pseudambasia* have peculiar distolateral tubular stylets on the outer lobes of the labium. These stylets protrude from a duct which opens externally via an apical pore. The role of these structures is unknown but, given their position on the labium, they may play a role in digestion.

*Pseudambasia* species variously display a strong dark pigment on the head and body (Longenecker & Bolick 2007), which may be sexually dimorphic in some species (see Lowry & Stoddart 1983 for *P. rossii*). In general, species described from Australia do not show any strong colouration pattern, with the exception of some specimens of *P. sheardi* sp. nov. from Tasmania.

### Key to species of *Pseudambasia*

Longenecker and Bolick (2007) published a key to the species of *Pseudambasia*, which was based mainly on body pigment. Here we present an updated morphology-based key to include the species described herein.

- |     |   |                         |
|-----|---|-------------------------|
| 1.  | Uropod 2 inner ramus strongly to slightly constricted . . . . .   | 5                       |
| -   | Uropod 2 inner ramus not constricted . . . . .  | 2                       |
| 2.  | Pereopod 7 basis with posteroventral corner rounded . . . . .   | 3                       |
| -   | Pereopod 7 basis with posteroventral corner excavate . . . . .  | <i>P. ponderi</i>       |
| 3.  | Gnathopod 1 simple (in female). Uropod 3 rami short and stout . . . . .   | <i>P. poorei</i>        |
| -   | Gnathopod 1 subchelate (in male and female). Uropod 3 rami slender . . . . .  | 4                       |
| 4.  | Eyes round. Uropod 3 inner ramus shorter than outer . . . . .   | <i>P. kalaupapa</i>     |
| -   | Eyes oval. Uropod 3 rami subequal in length . . . . .   | <i>P. springthorpei</i> |
| 5.  | Epimeron 3 posteroventral corner without notch . . . . .  | 6                       |
| -   | Epimeron 3 posteroventral corner minutely notched . . . . .   | 9                       |
| 6.  | Gnathopod 2 carpus length greater than 6 × breadth. Telson strongly tapering distally, apically subacute . . . . .                          | <i>P. nui</i>           |
| -   | Gnathopod 2 carpus length less than 4 × breadth. Telson distolateral margins subparallel, apically rounded or truncated . . . . .           | 7                       |
| 7.  | Pereopod 7 basis with posteroventral margin excavate . . . . .  | <i>P. rossii</i>        |
| -   | Pereopod 7 basis with posteroventral margin oblique . . . . .   | 8                       |
| 8.  | Lateral cephalic lobes broadly rounded. Epimeron 3 posterior margin straight, posterodistal corner subquadrate . . . . .                    | <i>P. lochi</i>         |
| -   | Lateral cephalic lobes distally truncated. Epimeron 3 posterior margin with small cusp above broadly rounded posterodistal corner . . . . . | <i>dartnalli</i>        |
| 9.  | Antenna 1 peduncular article 1 without anterodorsal lobe . . . . .  | 10                      |
| -   | Antenna 1 peduncular article 1 with anterodorsal lobe . . . . .   | <i>P. sheardi</i>       |
| 10. | Lateral cephalic lobe broadly rounded. Uropod 3 peduncle with dorsolateral flange . . . . .   | <i>P. acuticaudata</i>  |
| -   | Lateral cephalic lobe subquadrate. Uropod 3 peduncle without dorsolateral flange . . . . .  | <i>P. indentata</i>     |

### *Pseudambasia acuticaudata* (Ledoyer, 1984)

*Parambasia acuticaudata* Ledoyer, 1984: 84, fig. 41.—Barnard & Karaman, 1991: 514.—Lowry & Stoddart, 1994: 182.

*Pseudambasia acuticaudata*.—Lowry & Stoddart, 1995: 113, figs 8, 9.—Lowry & Stoddart, 2009: 565, figs 3, 4, pl. 4C.

**Material examined.** 4 specimens, AM P.68809, cove south of resort, Orpheus Island, Queensland, Australia ( $18^{\circ}37'S$   $146^{\circ}30'E$ ), rubble substrate, 1–2 m, J.D. Thomas, 12 February 1989. 1 specimen, AM P.68810, same locality information as above except coral rubble, mostly *Acropora*.

**Diagnostic description.** *Head lateral cephalic lobe broadly rounded*; eyes oval. Antenna 1 peduncular article 1 short, length  $1.4 \times$  breadth, without dorsal lobe; peduncular article 2 long,  $0.5 \times$  article 1; peduncular article 3 long,  $0.4 \times$  article 1; accessory flagellum short,  $0.3 \times$  primary flagellum, 2-articulate, article 1 long, subequal in length to article 2; primary flagellum 7-articulate, without callynophore, flagellum without aesthetascs. Antenna 2 flagellum 6-articulate. Mandible accessory setal row with 3 simple setae; molar reduced, represented by finely setose triangular flap; palp attached extremely proximally; article 1 long, length  $2.2 \times$  breadth; article 3 falcate, not apically bifurcate. Maxilla 1 inner plate without well-developed setae; outer plate broad with 11 setal teeth, setal teeth of outer row with cusps in 1 row; palp 2-articulate, with serrate apical margin. Maxilla 2 inner and outer plates broad; inner plate length  $0.6 \times$  outer plate. Labium outer lobe with distolateral stylets. Maxilliped inner plate with long apical robust seta.

Gnathopod 1 subchelate; coxa anterior margin slightly concave, anteroventral corner rounded, posterior margin straight; carpus short, length  $1.4 \times$  breadth, shorter than ( $0.9 \times$ ) propodus; propodus subtriangular, length  $1.7 \times$  breadth, palm extremely acute, margin straight, rugose. Gnathopod 2 minutely subchelate; carpus long, length  $3.3 \times$  breadth, palm convex. Pereopod 5 coxa equilobate. Pereopod 6 coxa not lobate posteriorly; basis posterodistal corner produced beyond ischium, ventrally rounded. Pereopod 7 basis expanded posteriorly, posterodistal margin rounded, posterodistal corner produced, forming lobe produced halfway along merus; merus moderately expanded posteriorly.

*Epimeron 3 posteroventral corner minutely notched*. Uropod 1 outer ramus slightly longer than inner ramus. Uropod 2 outer ramus slightly longer than inner ramus; inner ramus with moderate constriction. Uropod 3 peduncle short, with dorsolateral flange; rami slender, outer ramus shorter than inner ramus. Telson longer than broad, length  $1.2 \times$  breadth, lateral margins converging distally, apical margin subacute.

**Distribution.** Lizard Island (Lowry & Stoddart 2009) and Orpheus Island (this publication), Great Barrier Reef, Australia; Rurutu, Austral Isles, French Polynesia (Lowry & Stoddart 1994); îlot Maître, New Caledonia (Ledoyer 1984); Madang Lagoon, Papua New Guinea (Lowry & Stoddart 1995).

### *Pseudambasia dartnalli* sp. nov.

(Figs 1–3)

**Type material.** Holotype, female, 10.0 mm, AM P.68936, north of Schouten Island, Schouten Passage, Tasmania ( $42^{\circ}17'S$   $148^{\circ}18'E$ ), Van Veen grab, coarse sand, coralline algae and weed, 12 m, A. Dartnall, 8 June 1977. Paratypes: male, 5.9 mm, AM P.68937; 9 specimens, AM P.27055, same locality information as holotype.

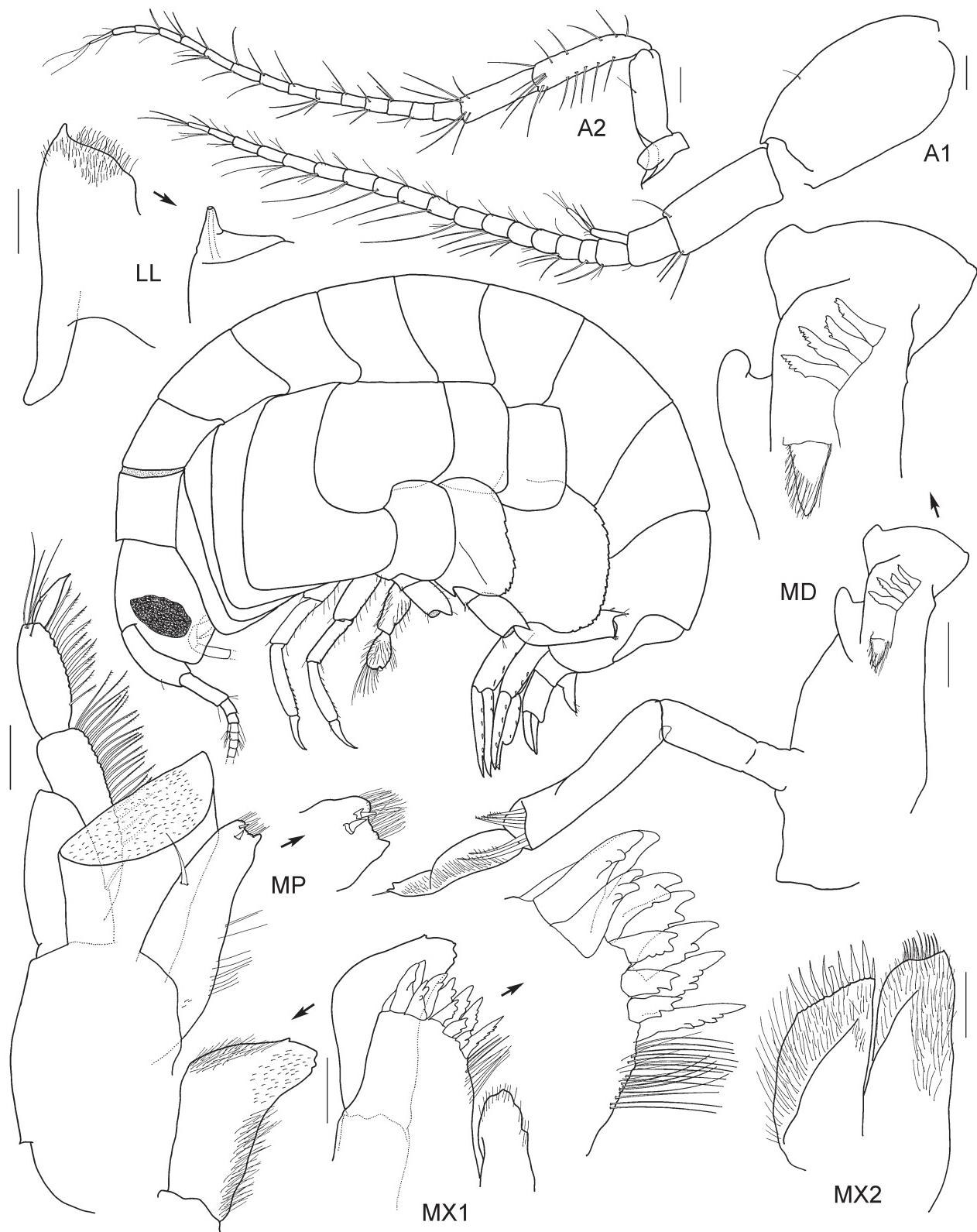
**Type locality.** North of Schouten Island, Schouten Passage, Tasmania ( $42^{\circ}17'S$   $148^{\circ}18'E$ ).

**Etymology.** Named for collector, Alan J. Dartnall.

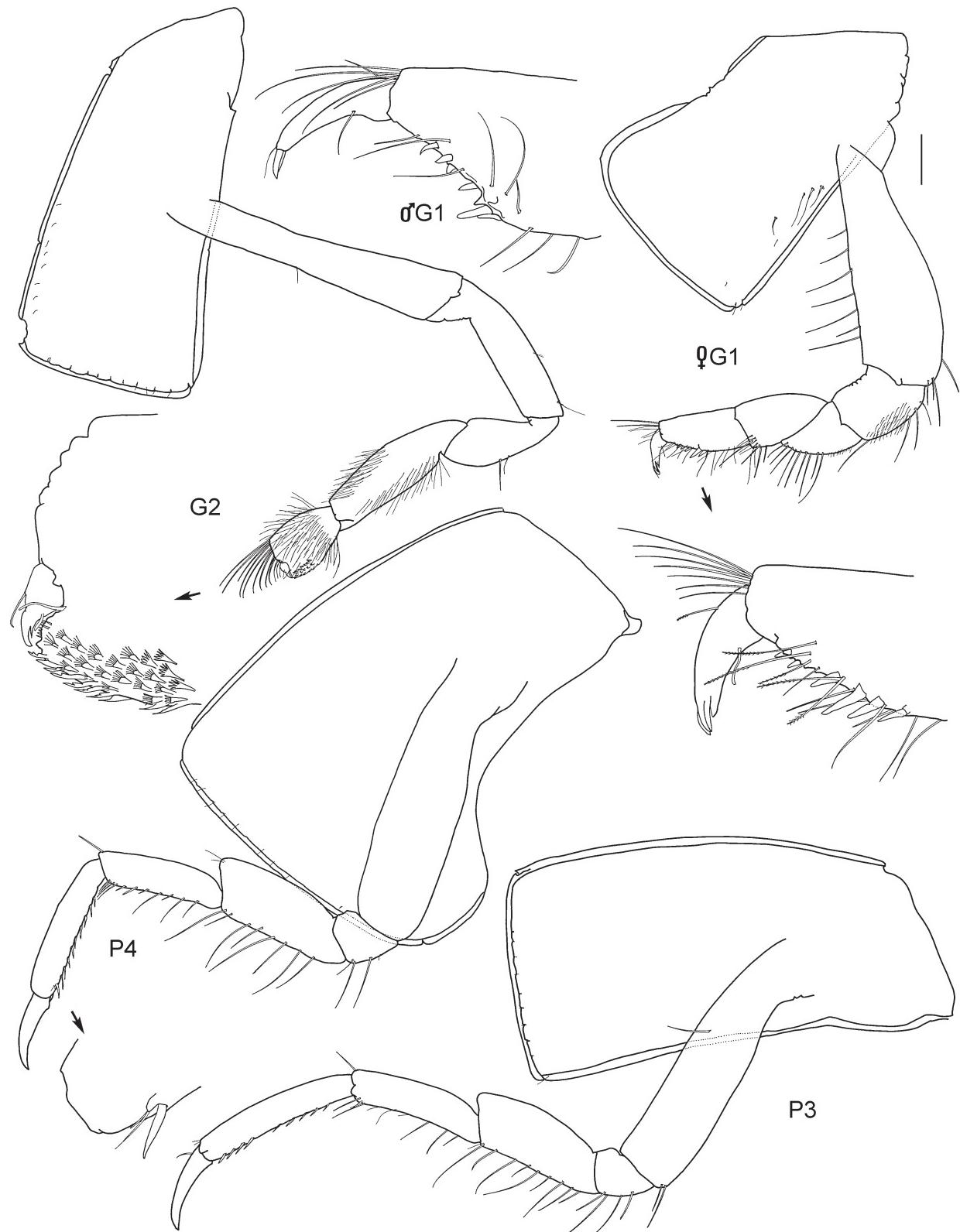
**Diagnostic description.** Based on holotype, female, 10.0 mm, AM P. 68936. *Head lateral cephalic lobe distally truncated*; eyes oval. Antenna 1 medium length; peduncular article 1 medium length, length  $1.7 \times$  breadth, without dorsal lobe; peduncular article 2 long,  $0.8 \times$  article 1; peduncular article 3 short,  $0.25 \times$  article 1; accessory flagellum very short,  $0.15 \times$  primary flagellum, 2-articulate, article 1 short, subequal in length to article 2; primary flagellum 17-articulate, without callynophore, without aesthetascs on most articles. Antenna 2 flagellum 15-articulate. Mandible accessory setal row with 4 multiserrate setae; molar reduced, represented by finely setose triangular flap; palp attached extremely proximally; article 1 long, length  $3.1 \times$  breadth; article 3 slender, blade-like, with distal crease, apically bifurcate. Maxilla 1 inner plate without well developed setae; outer plate broad with 11 setal teeth, setal teeth of outer row with cusps in 1 row; palp 2-articulate, without apical setae. Maxilla 2 inner and outer plates broad; inner plate length  $0.85 \times$  outer plate. Labium outer lobes with distolateral stylets. Maxilliped inner plate without apical nodular robust setae; with 2 subapical robust setae.

Gnathopod 1 weakly subchelate; coxa anterior margin slightly concave, anteroventral corner rounded, posterior margin straight; carpus short, length  $1.9 \times$  breadth, subequal in length ( $1.1 \times$ ) to propodus; propodus subrectangular, length  $2 \times$  breadth, palm extremely acute, margin straight. Gnathopod 2 minutely subchelate;

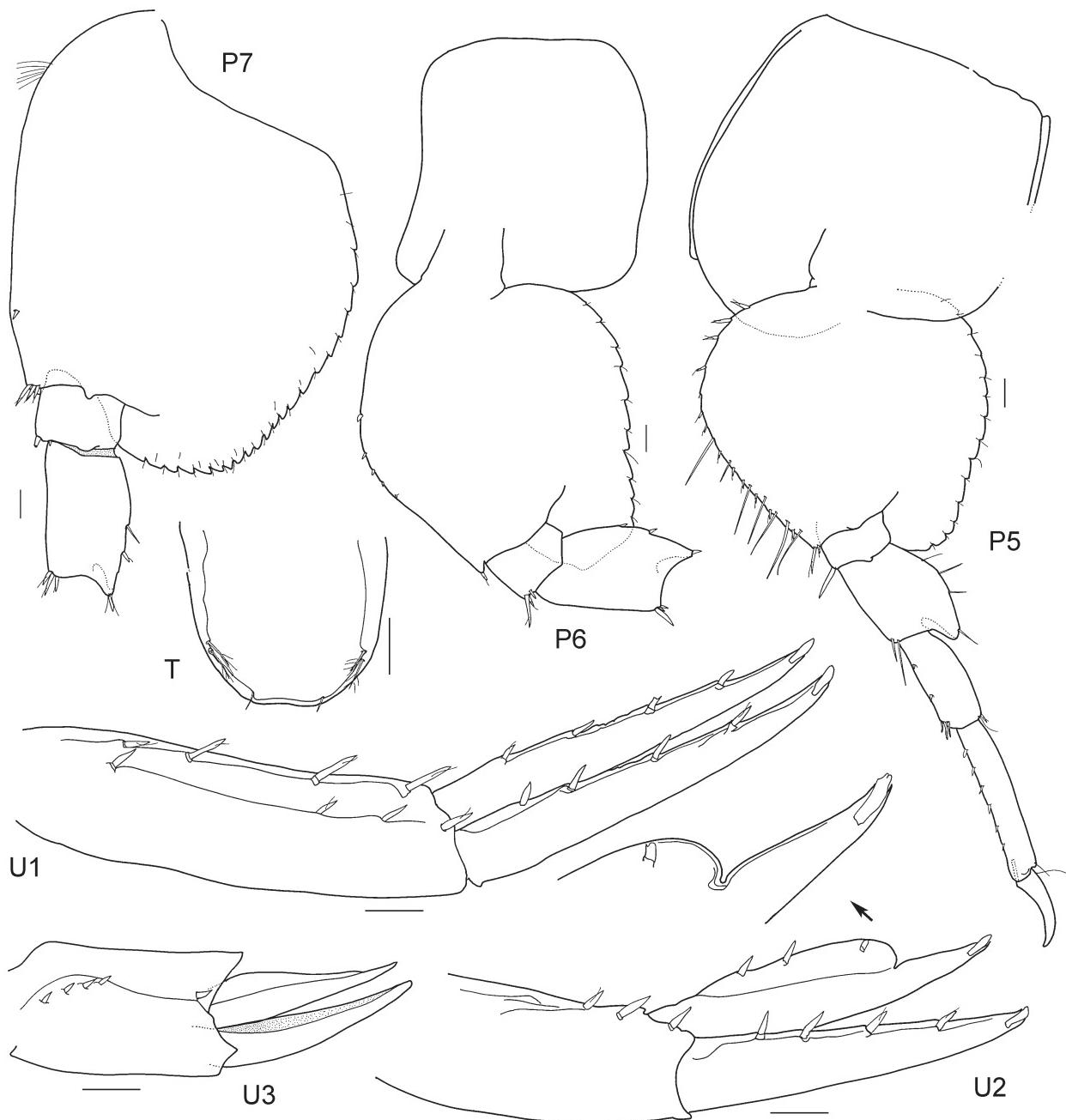
carpus long, length  $3 \times$  breadth; palm transverse or slightly obtuse, with convex margin. Pereopod 5 coxa equilobate. Pereopod 6 coxa not lobate posteriorly; basis posterodistal corner slightly produced beyond ischium, ventrally truncated. **Pereopod 7** basis expanded posteriorly, posterodistal margin slightly rounded, posteroventral corner rounded, *not produced beyond ischium*; merus slightly expanded posteriorly.



**FIGURE 1.** *Pseudambasia dartnalli* sp. nov., holotype, female, 10.0 mm, AM P.68936, Schouten Passage, Tasmania. Scale bars: 0.1 mm.



**FIGURE 2.** *Pseudambasia dartnalli* sp. nov., holotype, female, 10.0 mm, AM P.68936, Schouten Passage, Tasmania. Scale bar: 0.2 mm.



**FIGURE 3.** *Pseudambasia dartnalli* sp. nov., holotype, female, 10.0 mm, AM P.68936, Schouten Passage, Tasmania. Scale bars: 0.1 mm.

**Epimeron 3 posteroventral margin produced into small high cusp above broadly rounded posteroventral corner.** Uropod 1 rami subequal in length. Uropod 2 rami subequal in length; **inner ramus with strong constriction.** Uropod 3 peduncle short, **with dorsolateral flange;** rami slender, subequal in length. **Telson** as long as broad, **lateral margins subparallel, apical margin straight to very slightly rounded.**

**Sexually dimorphic characters.** Based on male, 5.9 mm, AM P.68937. Gnathopod 1 subchelate, palm extremely acute, margin straight, posterodistal corner defined by small spine and large robust seta.

**Remarks.** *Pseudambasia dartnalli* is a distinctive species characterised by a broadly rounded posteroventral corner on epimeron 3, a strongly constricted inner ramus on uropod 2 and a well-developed lateral flange on the peduncle of uropod 3 and a telson with subparallel lateral margins and a broad distal margin.

**Distribution.** Schouten Island, Tasmania.

*Pseudambasia lochi* sp. nov.

(Figs 4–6)

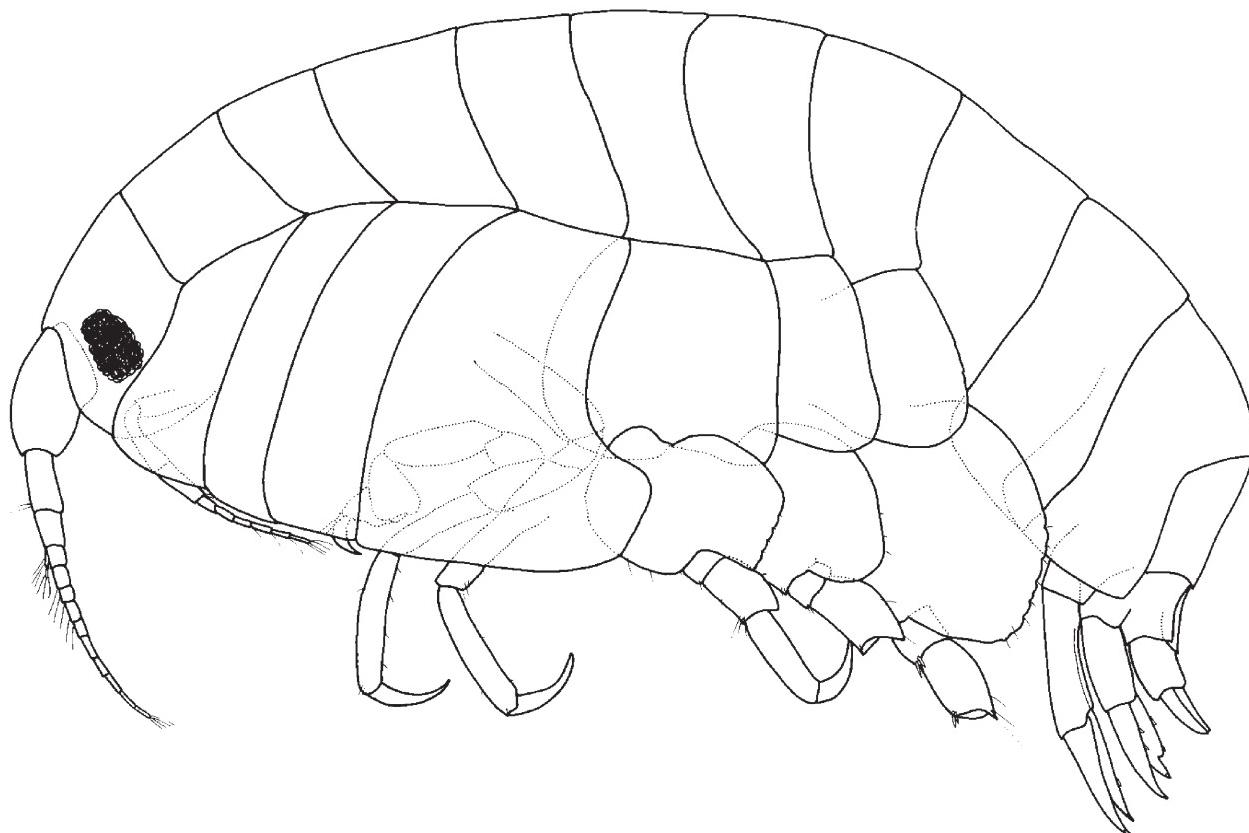
**Type material.** Holotype, female, 3.9 mm, AM P.68940, 19 km from Mt Young, toward Wallaroo, Spencer Gulf, South Australia ( $33^{\circ}18'S$   $137^{\circ}31'E$ ), 18 m, K. Sheard, 8 March 1938. Paratypes: 1 female, 5.1 mm, AM P.68941; 1 specimen (? male), 3.3 mm, AM P. 68866; 1 male, 3.7 mm, AM P.68942; all same locality information as holotype.

**Additional material examined.** 1 female, 3.9 mm, AM P.68861, southeast side of Gabo Island, Victoria ( $37^{\circ}34'S$   $149^{\circ}55'E$ ), 1 m, P.A. Hutchings, 14 February 1973. 2 specimens, AM P.68868, Australia, South Australia, north-east of Wardang Island, Spencer Gulf ( $34^{\circ}30'S$   $137^{\circ}22'E$ ), dredge, 7.2 m, K. Sheard, 12 March 1938; 1 male, 4.5 mm, AM P.68865, Australia, South Australia, Bay of Shoals, Kangaroo Island, ( $35^{\circ}37'S$   $137^{\circ}36'E$ ), algae, 0 m, I. Loch, E.K. Yoo & K. Handley, 7 March 1978.

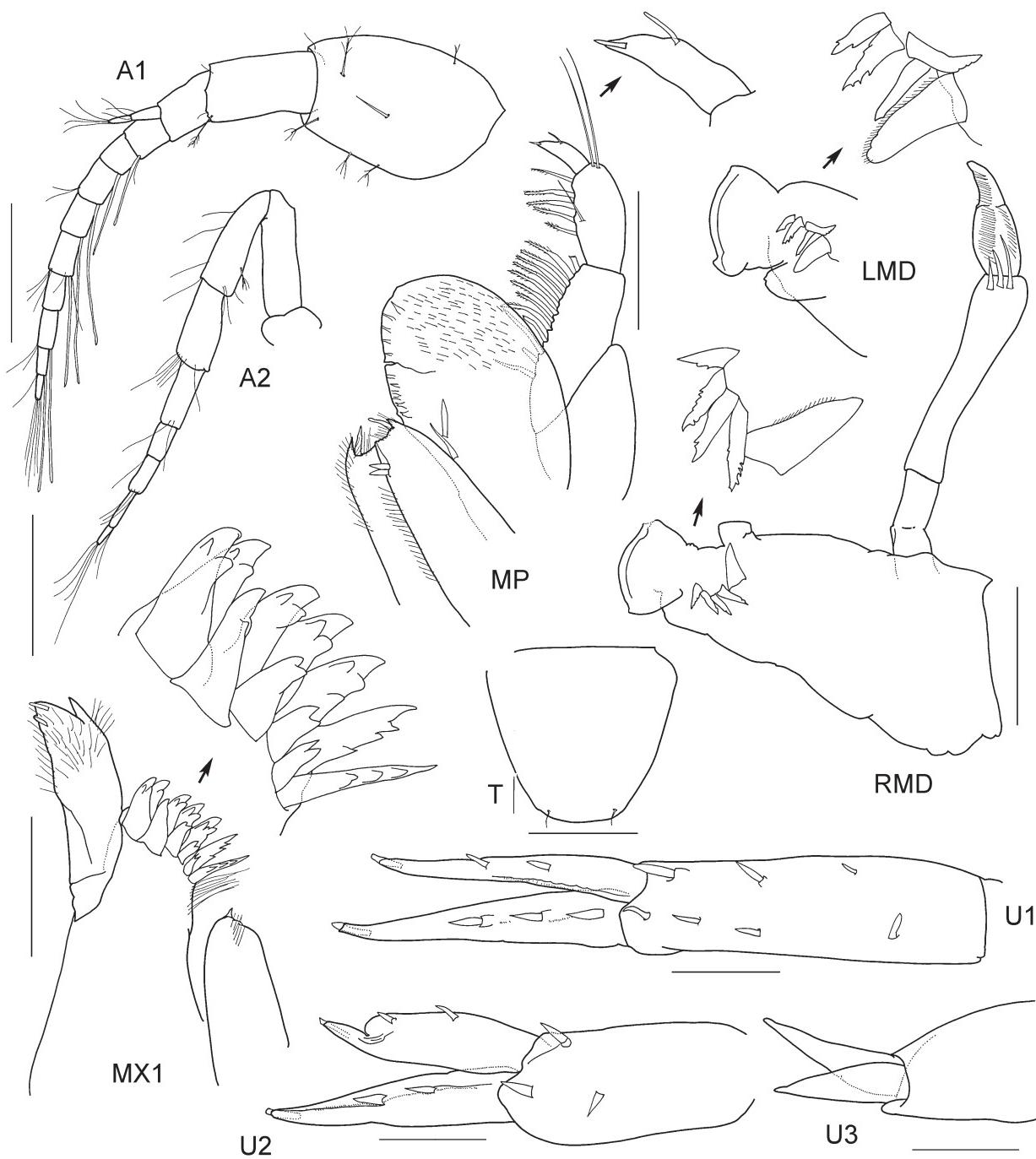
**Type locality.** 19 km from Mt Young, toward Wallaroo, Spencer Gulf, South Australia ( $33^{\circ}18'S$   $137^{\circ}31'E$ ).

**Etymology.** Named for Ian Loch, one of the collectors.

**Description.** Based on holotype, female, 3.9 mm, AM P.68940. **Head lateral cephalic lobe broadly rounded;** eyes oval. Antenna 1 short; peduncular article 1 short, length  $1.4 \times$  breadth, without dorsal lobe; peduncular article 2 long,  $1.6 \times$  article 1; peduncular article 3 long;  $0.25 \times$  article 1; accessory flagellum short,  $0.16 \times$  primary flagellum, 2-articulate, article 1 short; primary flagellum 9-articulate, without callynophore, with aesthetascs on most flagellar articles. Antenna 2 flagellum 4-articulate. Mandible accessory setal row with 4 multiserrate setae; molar reduced, represented by finely setose triangular flap; palp attached extremely proximally; article 1 long, length  $2.9 \times$  breadth; article 3 slender, blade-like, with distal crease. **Maxilla 1** inner plate with small sharp apical robust seta; outer plate broad, with 11 setal teeth, **setal teeth 1–5 of outer row with cusps in 2 rows;** palp 2-articulate, apical margin with 3 sharp spines and 2 robust setae. Labium outer lobes without distolateral styles. Maxilliped inner plate without apical nodular robust setae; distolateral corner with distinct sharp spine and large robust seta.



**FIGURE 4.** *Pseudambasia lochi* sp. nov., female habitus, 3.9 mm, AM P.68861, Spencer Gulf, South Australia.



**FIGURE 5.** *Pseudambasia lochi* sp. nov., holotype, female, 3.9 mm, AM P. 68940, Spencer Gulf, South Australia. Scale bars: 0.2 mm.

**Gnathopod 1 weakly subchelate;** coxa anterior margin slightly concave, anteroventral corner rounded, coxa posterior margin straight; carpus short, length  $1.6 \times$  breadth, subequal in length to propodus; propodus subtriangular, length  $1.6 \times$  breadth, **palm extremely acute**, margin straight, rugose. Gnathopod 2 carpus long, length  $4 \times$  breadth; palm transverse, with slightly convex margin. Pereopod 5 coxa equilobate. Pereopod 6 coxa not produced; basis posterodistal corner produced beyond ischium, forming rounded lobe. Pereopod 7 basis expanded posteriorly, posterodistal margin oblique, posterodistal corner moderately produced, forming lobe produced halfway along merus; merus slightly expanded posteriorly.

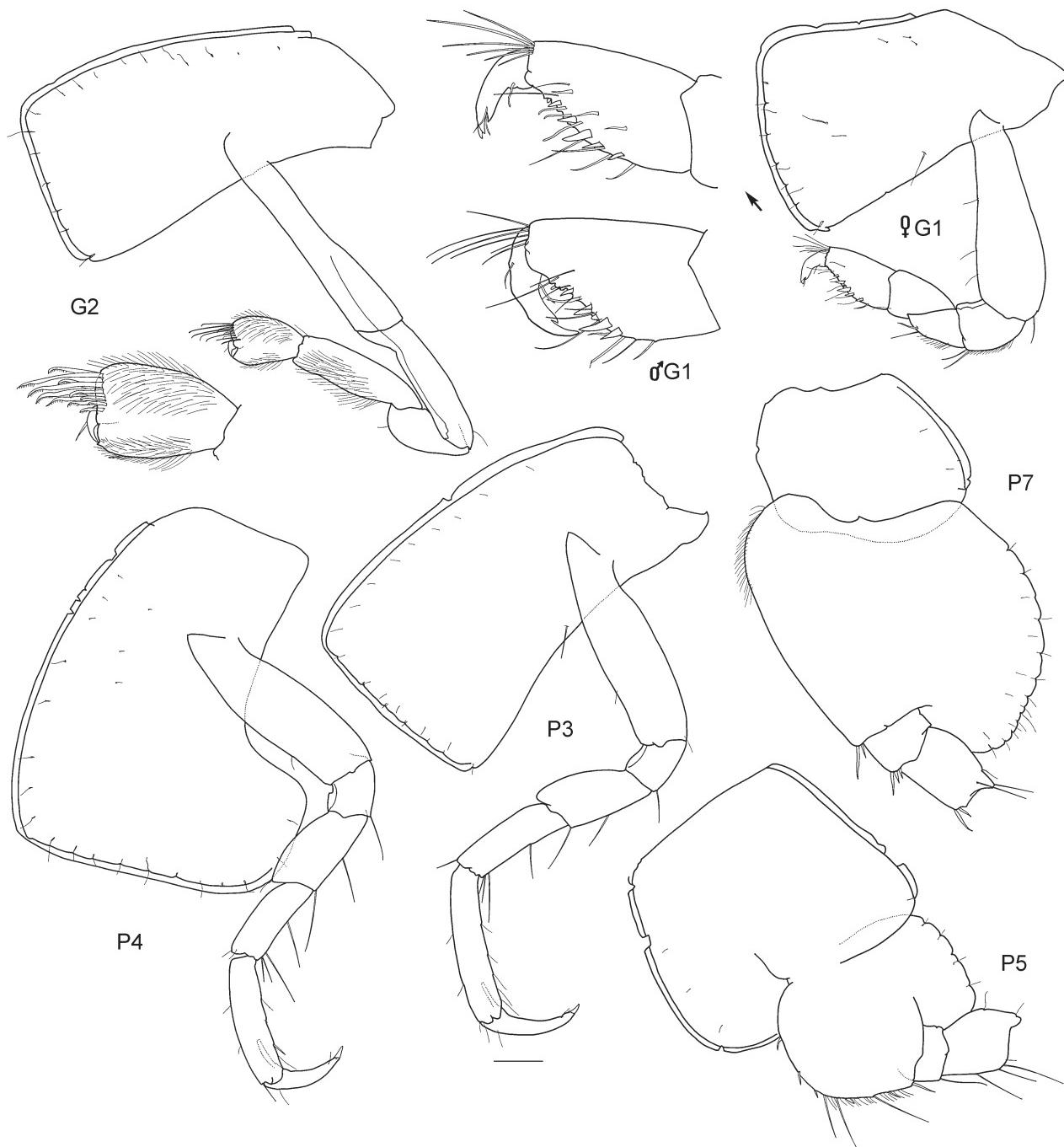
Epimeron 3 posteroventral corner subquadrate. Uropod 1 outer ramus slightly longer than inner ramus. **Uropod 2** outer ramus slightly longer than inner ramus; **inner ramus with strong constriction**. Uropod 3 peduncle short,

with small dorsolateral flange; rami slender. **Telson** as long as broad, length  $0.9 \times$  breadth, lateral margins subparallel to slightly converging distally; **apical margin straight**.

**Sexually dimorphic characters.** Based on male, AM P.68942. **Gnathopod 1 subchelate**; propodus length  $1.4 \times$  breadth; palm *acute*.

**Remarks.** *Pseudambasia lochi* appears to be most similar to *P. nui* from Fiji. Both have a strongly constricted inner ramus on uropod 2, a narrowly rounded/subsquare posteroventral corner on epimeron 3, but *P. nui* has a weakly subchelate female gnathopod 2 and an extremely long carpus on gnathopod 2. The telson of *P. lochi* is also very different to that of *P. nui*, the lateral margins of which are more strongly tapering in *P. nui* and the apical margin is subacute.

**Distribution.** Gabo Island, Victoria to Spencer Gulf, South Australia.

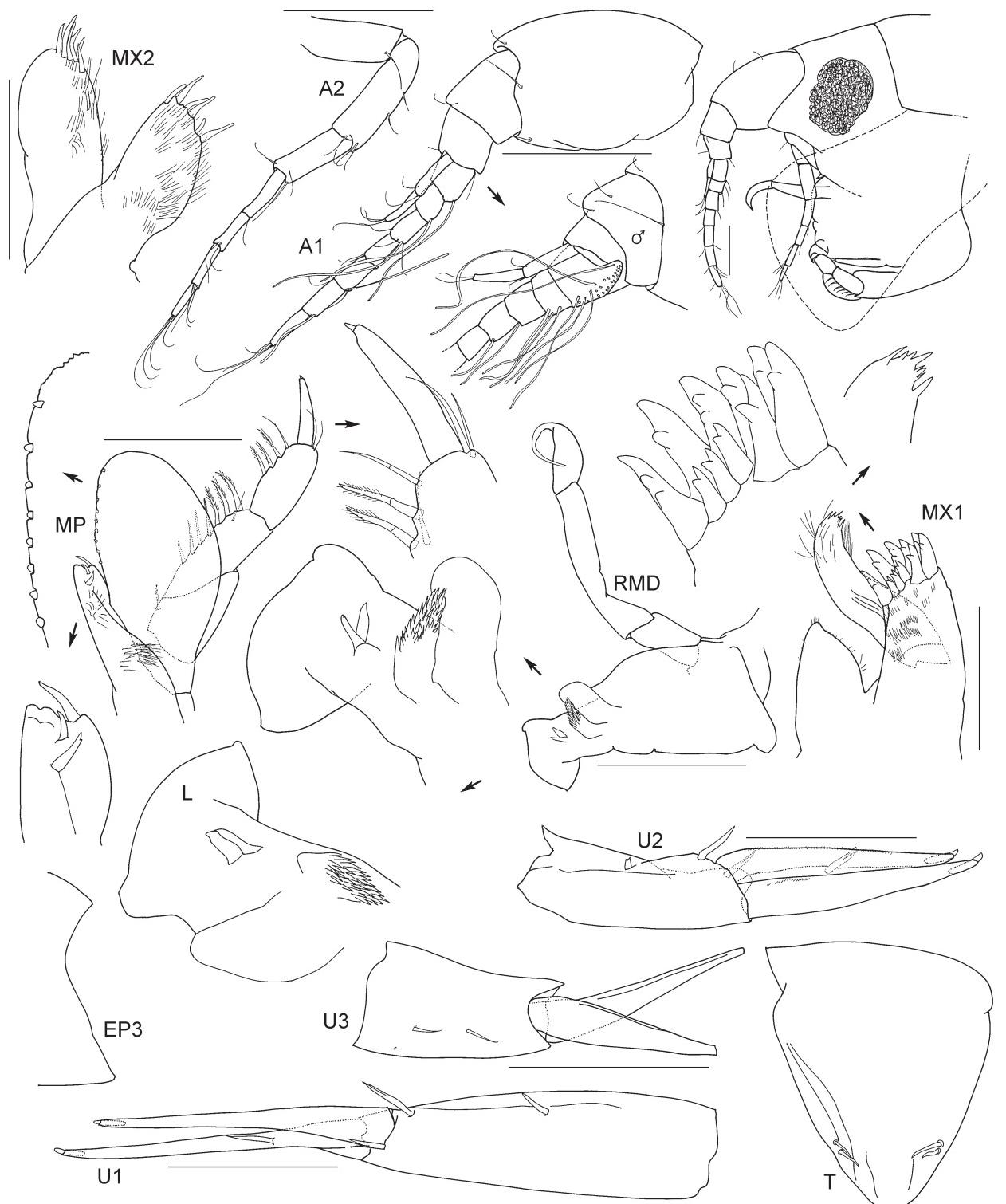


**FIGURE 6.** *Pseudambasia lochi* sp. nov., holotype, female, 3.9 mm, AM P.68940, paratype male AM P.68942, Spencer Gulf, South Australia. Scale bar: 0.2 mm.

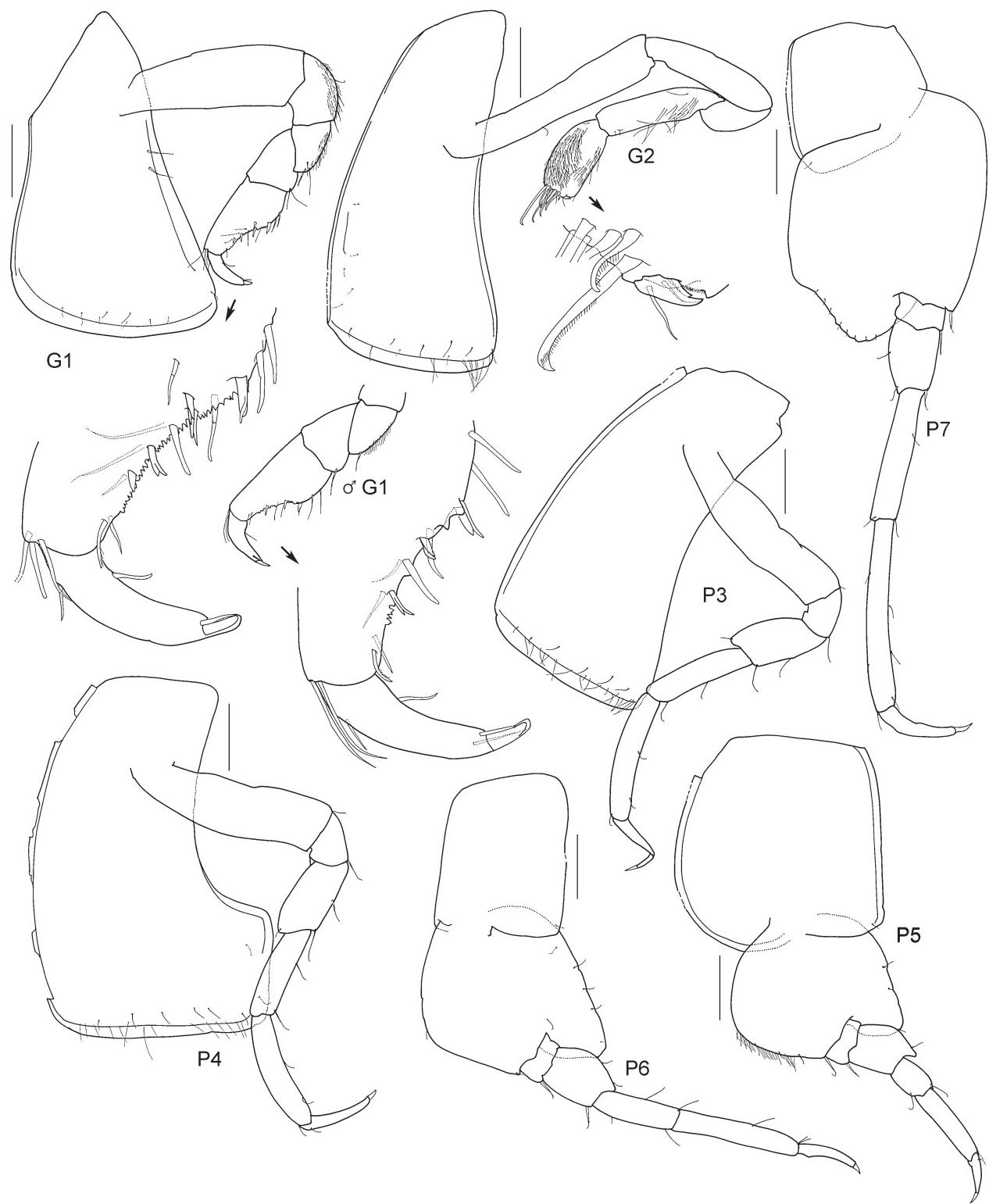
*Pseudambasia ponderi* sp. nov.

(Figs 7, 8)

**Type material.** Holotype, female, 2.7 mm, AM P.68946, Hospital Point, Thursday Island, Torres Strait, Queensland, Australia (10°35'S 142°13'E), algal washings, W.F. Ponder & I. Loch, 29 June 1976. Paratypes: male, 1.9 mm, AM P.68947; 2 specimens, AM P.68811, same locality as holotype.



**FIGURE 7.** *Pseudambasia ponderi* sp. nov., all parts from holotype, female, 2.7 mm, AM P.68946, except A1 from paratype male, AM P.68947, Thursday Island, Torres Strait. Scale bars: 0.1 mm.



**FIGURE 8.** *Pseudambasia ponderi* sp. nov., all parts from holotype, female, 2.7 mm, AM P.68946, except G1 from paratype male, AM P.68947, Thursday Island, Torres Strait. Scale bars: 0.1 mm.

**Type locality.** Hospital Point, Thursday Island, Torres Strait Queensland, Australia ( $10^{\circ}35'S$   $142^{\circ}13'E$ ).

**Etymology.** Named for collector.

**Habitat.** Living among algae.

**Diagnostic description.** Based on holotype, female, 2.7 mm, AM P.68946. **Head lateral cephalic lobe**

*apically subacute*; eyes oval. Antenna 1 short; peduncular article 1 short, length  $1.4 \times$  breadth, without dorsal lobe; peduncular article 2 short,  $0.43 \times$  article 1; peduncular article 3 long,  $0.26 \times$  article 1; accessory flagellum medium length,  $0.36 \times$  primary flagellum, 2-articulate, article 1 long,  $1.2 \times$  article 2; primary flagellum 7-articulate, without callynophore, flagellum with aesthetascs on most flagellar articles. Antenna 2 flagellum 4-articulate. Mandible accessory setal row with 2 simple setae; molar reduced, represented by a tongue-like flap; palp attached extremely proximally; article 1 long, length  $2 \times$  breadth; article 3 slender, blade-like, tapering into a long flagellate-like tip. Maxilla 1 outer plate broad with 10 setal teeth, setal teeth of outer row with cusps in 1 row; palp 2-articulate, without apical setae; palp with irregular apical margin. Maxilla 2 inner and outer plates broad; inner plate length  $1 \times$  outer plate. Labium outer lobes unknown. Maxilliped inner plate with apical robust seta and 2 subapical robust setae.

Gnathopod 1 subchelate; coxa anterior margin slightly concave, anteroventral corner rounded, posterior margin straight to very slightly concave; carpus short, length  $1.4 \times$  breadth, shorter than ( $0.73 \times$ ) propodus; propodus subtriangular, length  $1.8 \times$  breadth, palm acute to extremely acute, margin concave, finely serrate. Gnathopod 2 minutely subchelate; carpus long, length  $3.7 \times$  breadth; palm transverse, with straight margin. Pereopod 5 coxa equilobate; basis posteroventrally produced into small lobe. Pereopod 6 coxa not produced; basis posterodistal corner produced beyond ischium, forming subacute lobe. **Pereopod 7 basis** expanded posteriorly, **posterodistal margin excavate**, posterodistal corner narrowly rounded, not produced beyond ischium; merus slightly expanded posteriorly.

**Epimeron 3 posteroventral corner produced, subacute.** Uropod 1 outer ramus slightly longer than inner ramus. **Uropod 2** outer ramus slightly longer than inner ramus; **inner ramus without constriction.** Uropod 3 peduncle short, without dorsolateral flange; rami slender, subequal in length. **Telson longer than broad**, length  $1.2 \times$  breadth, lateral margins converging distally, apical margin subacute.

**Sexually dimorphic characters.** Based on male, 1.9 mm, AM P.68947. **Antenna 1 with strong 1-field callynophore**, flagellum with aesthetascs. Gnathopod 1 subchelate; palm acute to extremely acute, margin concave, irregular to weakly serrate.

**Remarks.** *Pseudambasia ponderi* is a distinctive species with a small subtriangular lateral cephalic lobe, an excavate posteroventral corner on the basis of pereopod 7 (similar to *P. rossii*), a produced subacute posteroventral corner on epimeron 3, long, slender rami on uropod 1 (similar to *P. indentata*) and a non-constricted inner ramus on uropod 2.

**Distribution.** Thursday Island, Torres Strait, Queensland.

#### *Pseudambasia poorei* sp. nov.

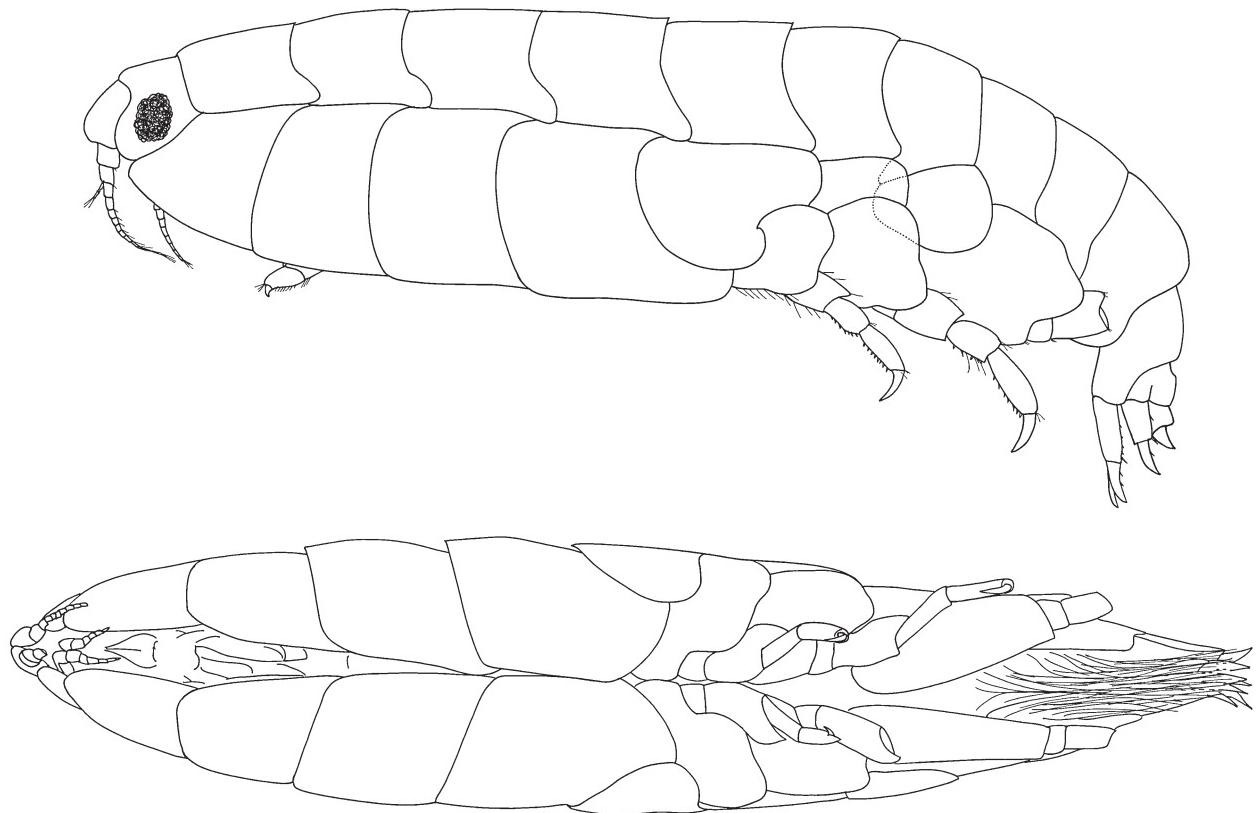
(Figs 9–11)

**Type material.** Holotype, female with 6 embryos, 13.8 mm, NMV J46799, NMV SA-17 from Tiparra Light, Tiparra reef, Tiparra Bay, South Australia ( $34^{\circ}10'S$ ,  $137^{\circ}23'E$ ), sea grass *Zostera* and coarse rubble, 5 m, G.C.B. Poore & H.M. Lew Ton, 15 March 1985.

**Type locality.** Tiparra Light, Tiparra reef, Tiparra Bay, South Australia ( $34^{\circ}10'S$ ,  $137^{\circ}23'E$ ).

**Etymology.** Named for the collector.

**Description.** Based on holotype, female, 13.8 mm, NMV J46799. Head lateral cephalic lobe broadly rounded and slightly truncated distally; eyes oval. Antenna 1 short; peduncular article 1 short, length  $1.2 \times$  breadth, without dorsal lobe, without spines on distomedial margin; peduncular article 2 long,  $0.6 \times$  article 1; peduncular article 3 long,  $0.3 \times$  article 1; accessory flagellum short,  $0.3 \times$  primary flagellum, 2-articulate, article 1 long,  $1 \times$  article 2; primary flagellum 11-articulate, without callynophore, flagellum with aesthetascs. Antenna 2 flagellum 8-articulate. Mandible accessory setal row with 4 simple setae; molar vestigial, represented by an irregular bump; palp attached extremely proximally; article 1 extremely long, length  $4.5 \times$  breadth; article 3 slender, blade-like, with distal crease. Maxilla 1 outer plate broad, with 11 setal teeth, setal teeth of outer row with cusps in 1 row; palp 2-articulate, without apical setae; with finely setose, irregular apical margin. Maxilla 2 inner plate broad, outer plate narrower; inner plate subequal in length to outer plate. Labium outer lobe unknown. Maxilliped inner plate apical margin irregular with robust setae; outer plate small.



**FIGURE 9.** *Pseudambasia poorei* sp. nov., habitus, holotype, female, NMV J46799, 13.8 mm.

Gnathopod 1 simple; coxa anterior margin concave, anteroventral corner produced, rounded, coxa posterior margin slightly convex; carpus short, length  $1.4 \times$  breadth, slightly longer than ( $1.3 \times$ ) propodus; propodus subtriangular, length  $1.3 \times$  breadth, palm absent. Gnathopod 2 minutely subchelate; carpus very long, length  $4.3 \times$  breadth; palm acute, with convex margin. Pereopod 5 coxa bilobate, anterior lobe strongly produced ventrally. Pereopod 6 coxa not produced; basis posterodistal corner not produced beyond ischium, ventrally truncated. Pereopod 7 basis expanded posteriorly, posterodorsally excavate, posterodistal margin oblique to very slightly concave, posterodistal corner narrowly rounded and produced halfway along merus; merus moderately expanded posteriorly.

Epimeron 3 posteroventral corner narrowly rounded/subsquare. Uropod 1 outer ramus slightly longer than inner ramus. **Uropod 2** outer ramus slightly longer than inner ramus; **inner ramus without constriction**. **Uropod 3** peduncle short, **with dorsolateral flange**; **rami stout, short**, subequal in length. Telson as long as broad, lateral margins rounded, apical margin rounded.

**Remarks.** *Pseudambasia poorei* is unique within the genus by having a simple first gnathopod and a vestigial molar represented by an irregularly shaped lump on the mandible. The short, stout uropods of this species are also unlike its congeners which are generally long and slender. Its torpedo-like body shape is also a distinguishing characteristic.

**Distribution.** Tiparra Bay, South Australia.

#### *Pseudambasia sheardi* sp. nov.

(Figs 12, 13)

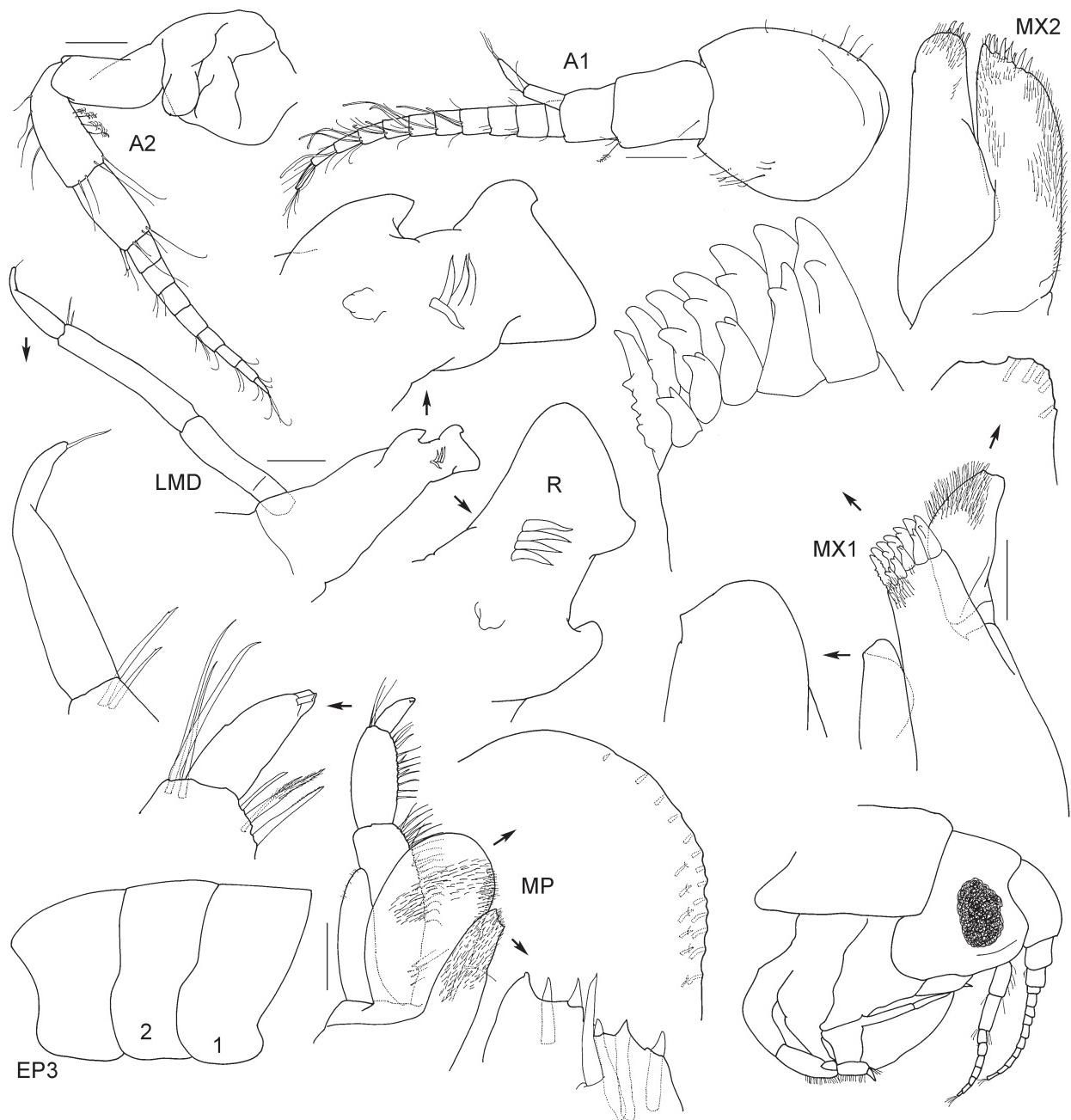
**Type material.** Holotype, male, 3.3 mm, AM P.68867, Corny Point to Pandalowie, Spencer Gulf, South Australia ( $34^{\circ}54'S$   $137^{\circ}01'E$ ), 36.5 m, K. Sheard, 14 March 1938.

**Additional material examined.** 1 specimen, sex unknown, 2.5 mm, AM P.68862, south east side of Gabo

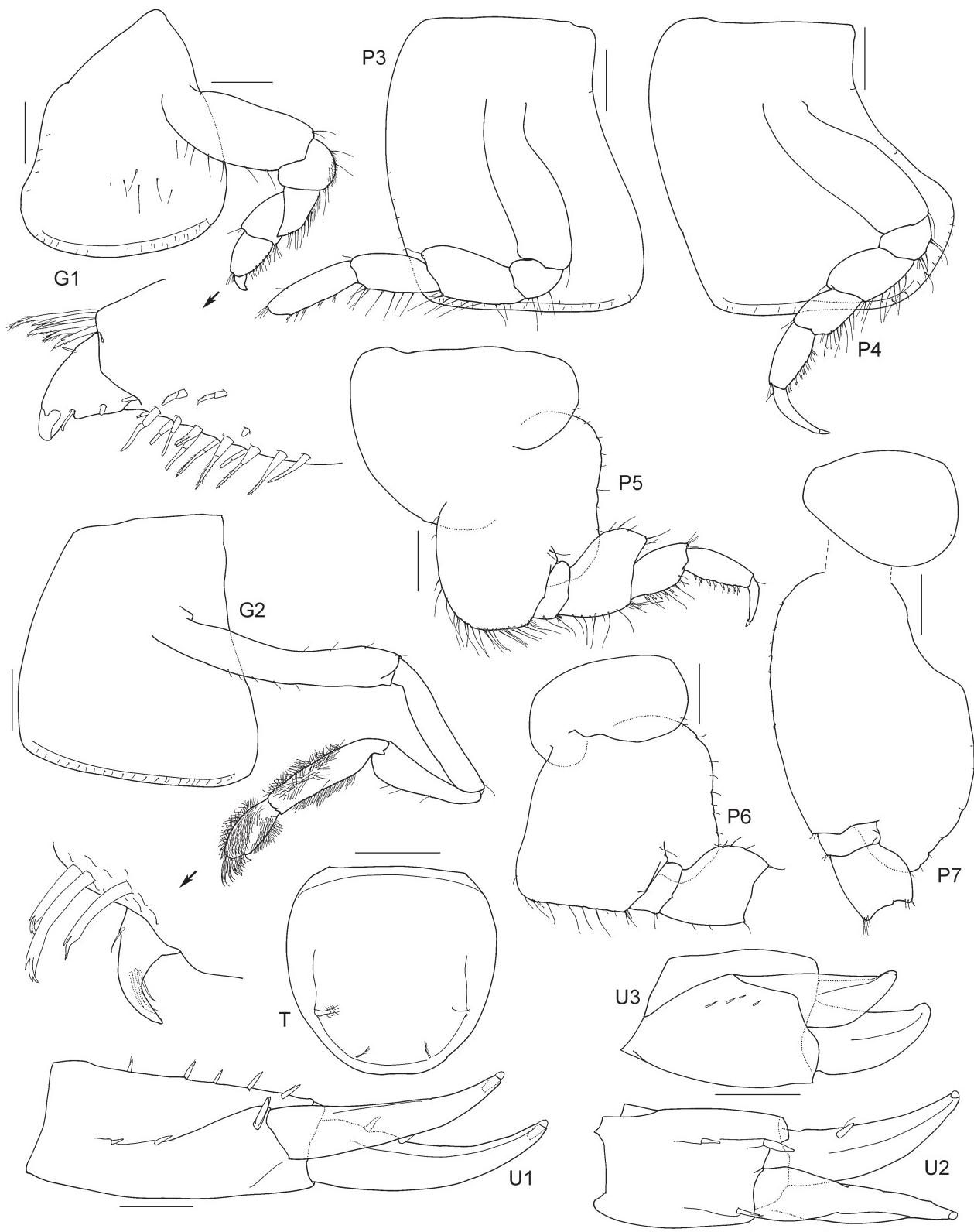
Island, below lighthouse, Victoria ( $37^{\circ}34'S$   $149^{\circ}55'E$ ), 15-18 m, P.A. Hutchings, 15 February 1973; 2 specimens, AM P.68863, Joes Bight, Freycinet Peninsula, Tasmania ( $42^{\circ}16'42"S$   $148^{\circ}18'42"E$ ), sponges, 15-17 m, R.T. Springthorpe and S.J. Keable, 1 May 1991; 10 specimens, AM P.68864, Joes Bight, Freycinet Peninsula, Tasmania ( $42^{\circ}16'42"S$   $148^{\circ}18'42"E$ ), sandy boulder surface, 17 m, R.T. Springthorpe and S.J. Keable, 1 May 1991; 1 specimen, 2.9 mm, AM P.68943, Joes Bight, Freycinet Peninsula, Tasmania ( $42^{\circ}16'42"S$   $148^{\circ}18'42"E$ ), 17 m, R.T. Springthorpe and S.J. Keable, 1 May 1991; 1 specimen, 2.9 mm, AM P.83721, 450 m off Weatherhead, Freycinet Peninsula, Tasmania ( $42^{\circ}14'S$   $148^{\circ}14'42"E$ ), baited trap, 15 m, J.K. Lowry & S.J. Keable, 30 April – 1 May 1991.

**Type locality.** Corny Point to Pandalowie, Spencer Gulf, South Australia ( $34^{\circ}54'S$   $137^{\circ}01'E$ ).

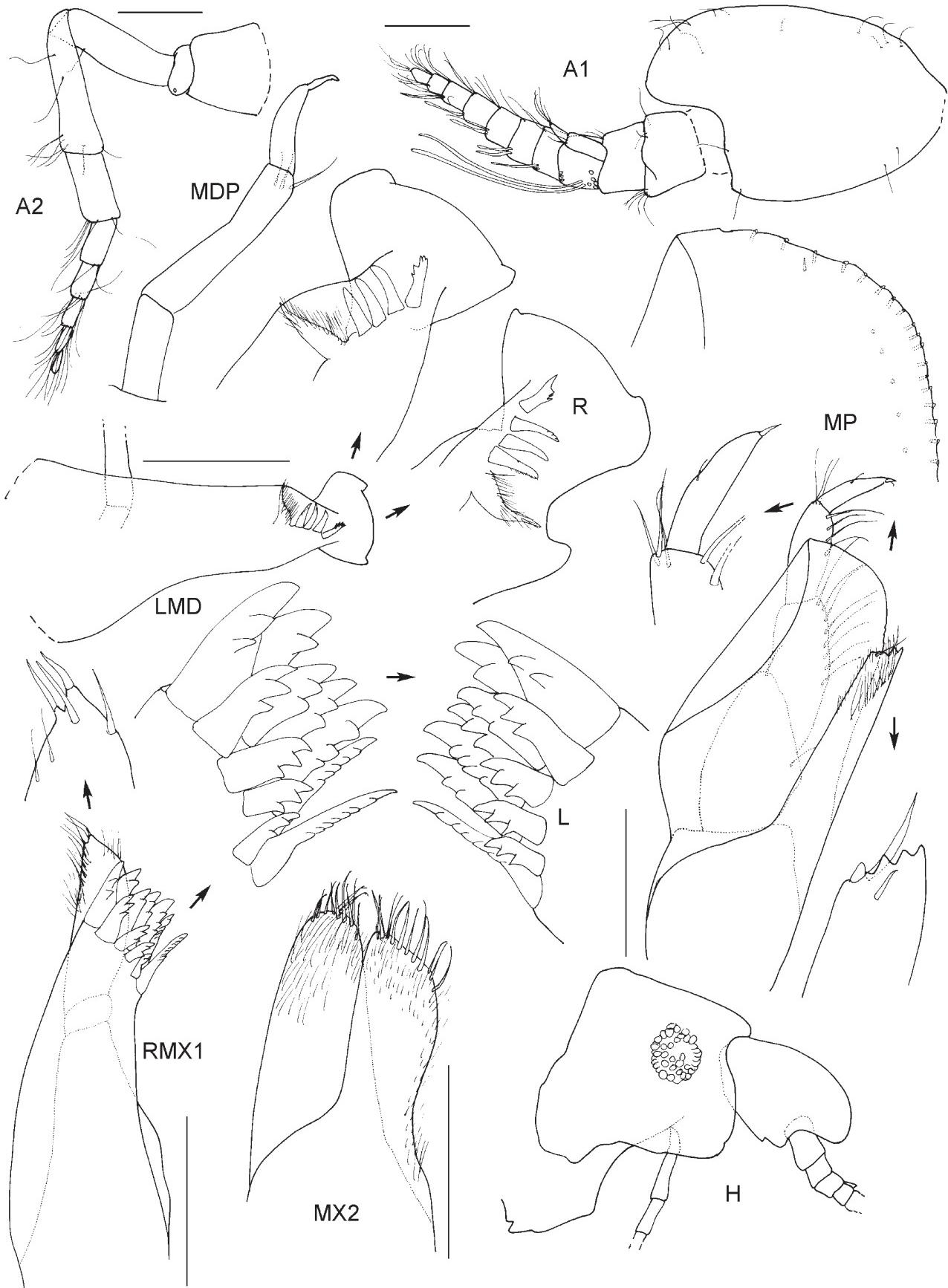
**Etymology.** Named for Keith Sheard, the collector.



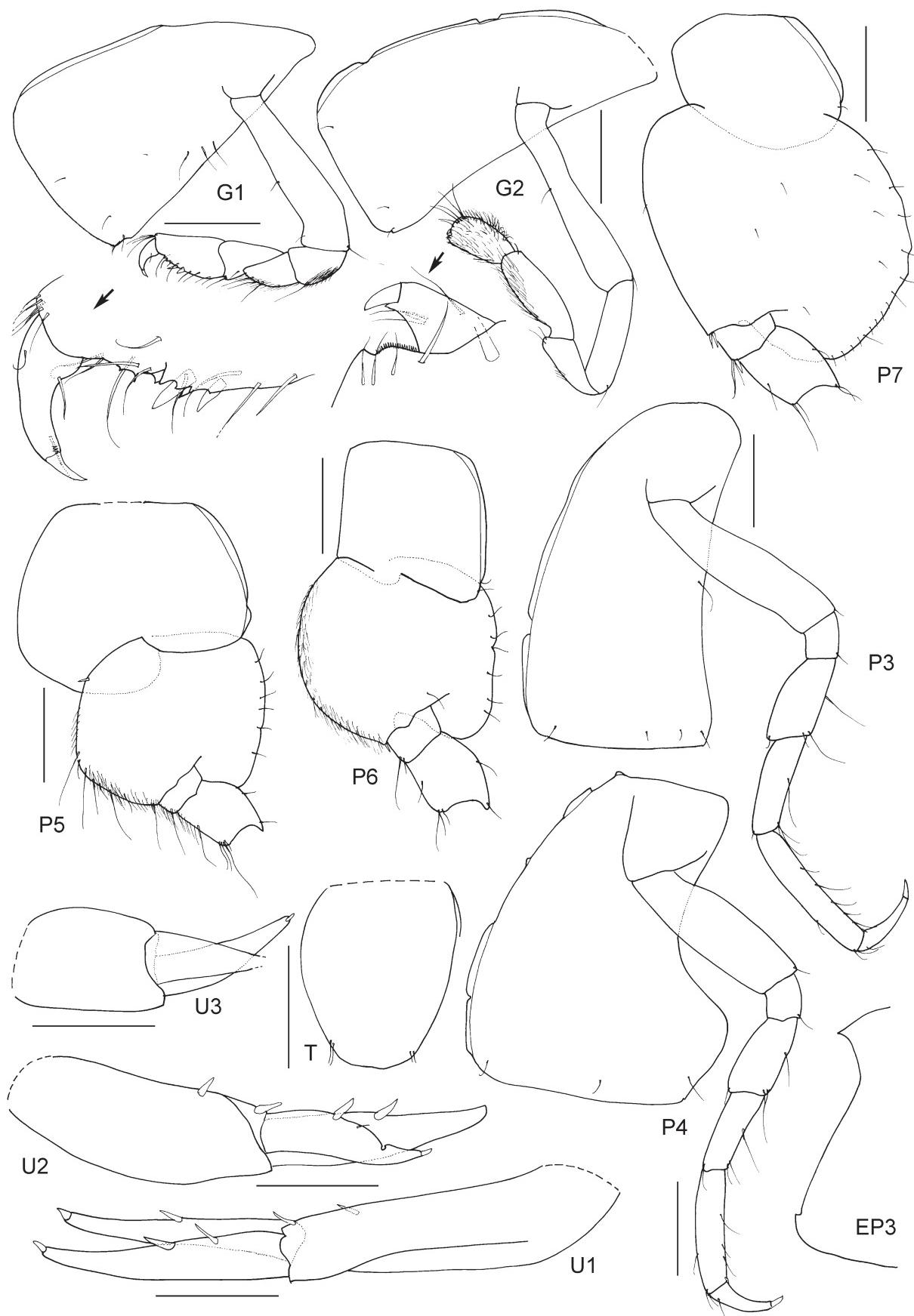
**FIGURE 10.** *Pseudambasia poorei* sp. nov., **habitus**, holotype, female, 13.8 mm, NMV J46799, Tiparra Bay, South Australia. Scale bars: 0.2 mm.



**FIGURE 11.** *Pseudambasia poorei* sp. nov., habitus, holotype, female, 13.8 mm, NMV J46799, Tiparra Bay, South Australia. Scale bars: G1-2 and P3-7, 0.5 mm; U1-3 and T, 0.2 mm.



**FIGURE 12.** *Pseudambasia sheardi* sp. nov., holotype, male, 3.3 mm, AM P.68867, Spencer Gulf, South Australia. Scale bars: 0.1 mm.



**FIGURE 13.** *Pseudambasia sheardi* sp. nov., holotype, male, 3.3 mm, AM P.68867, Spencer Gulf, South Australia. Scale bars: G1-2 and P3-7, 0.2 mm; U1-3 and T, 0.1 mm.

**Diagnostic description.** Based on holotype, male, 3.3 mm, AM P.68867. Head lateral cephalic lobe broad, subacute; eyes round. *Antenna 1* short; *peduncular article 1* short, length  $1.2 \times$  breadth, *with distinct dorsal lobe*; peduncular article 2 short,  $0.2 \times$  article 1; peduncular article 3 short,  $0.2 \times$  article 1; accessory flagellum short,  $0.33 \times$  primary flagellum, 2-articulate, article 1 short,  $1.25 \times$  article 2; primary flagellum 8-articulate, with weak 1-field callynophore, with aesthetascs on most flagellar articles. Antenna 2 flagellum 5-articulate. Mandible accessory setal row with 4 setae, the distal-most seta multiserrate; molar reduced, represented by finely setose triangular flap; palp attached proximally; article 1 long, length  $2.5 \times$  breadth; article 3 slender, blade-like, tapering into a long flagellate-like tip. Maxilla 1 outer plate broad, with 11 setal teeth, setal teeth of outer row with cusps in 1 row; palp 2-articulate, with apical slender setae. Maxilla 2 inner and outer plates broad; inner plate length  $1 \times$  outer plate. Labium outer lobe unknown. Maxilliped inner plate distal margin serrate with apical nodular robust seta.

Gnathopod 1 weakly subchelate; coxa anterior margin straight, anteroventral corner rounded, posterior margin straight; carpus short, length  $1.8 \times$  breadth, subequal in length to propodus; propodus subtriangular, length  $1.7 \times$  breadth, palm extremely acute, margin rugose to serrate. Gnathopod 2 minutely subchelate; carpus long, length  $3.3 \times$  breadth; palm transverse, with slightly sinusoidal margin. Pereopod 5 coxa bilobate, anterior lobe slightly produced ventrally. Pereopod 6 coxa with small, narrow posterior lobe; basis posterodistal corner slightly produced beyond ischium, forming rounded lobe. Pereopod 7 basis posterodistal margin oblique, posterodistal corner moderately produced, forming lobe produced halfway along merus; merus moderately expanded posteriorly.

*Epimeron 3 posterodistal corner minutely notched.* Uropod 1 rami subequal in length. Uropod 2 outer ramus slightly longer than inner ramus; inner ramus with moderate constriction. Uropod 3 peduncle short, without dorsolateral flange; rami slender. Telson longer than broad, length  $1.25 \times$  breadth, lateral margins rounded, apical margin slightly rounded.

**Remarks.** *Pseudambasia sheardi* differs from all other species in the genus because of the well-developed anterodistal lobe on peduncular article 1 of antenna 1. It has a minutely notched posteroventral corner on epimeron 3, similar to *P. acuticaudata* from New Caledonia, Papua New Guinea and the Great Barrier Reef and *P. indentata* from Madagascar. *Pseudambasia sheardi* also has a slightly tapering telson with a broad distal margin similar to *P. dartnalli* and *P. lochi*.

Some of the specimens collected from Joes Bight (AM P.68864) off the Freycinet Peninsula displayed a distinct chocolate-brown solid colouration across the head, pereonites and pleonites, and coxae of pereopods 1–3 and pereopod 7. Not all specimens from Joes Bight exhibited this colour pattern, nor did any specimens from other locations, therefore we cannot speculate on its significance.

**Distribution.** Spencer Gulf, South Australia; Gabo Island, Victoria; Freycinet Peninsula, Tasmania.

#### *Pseudambasia springthorpei* sp. nov.

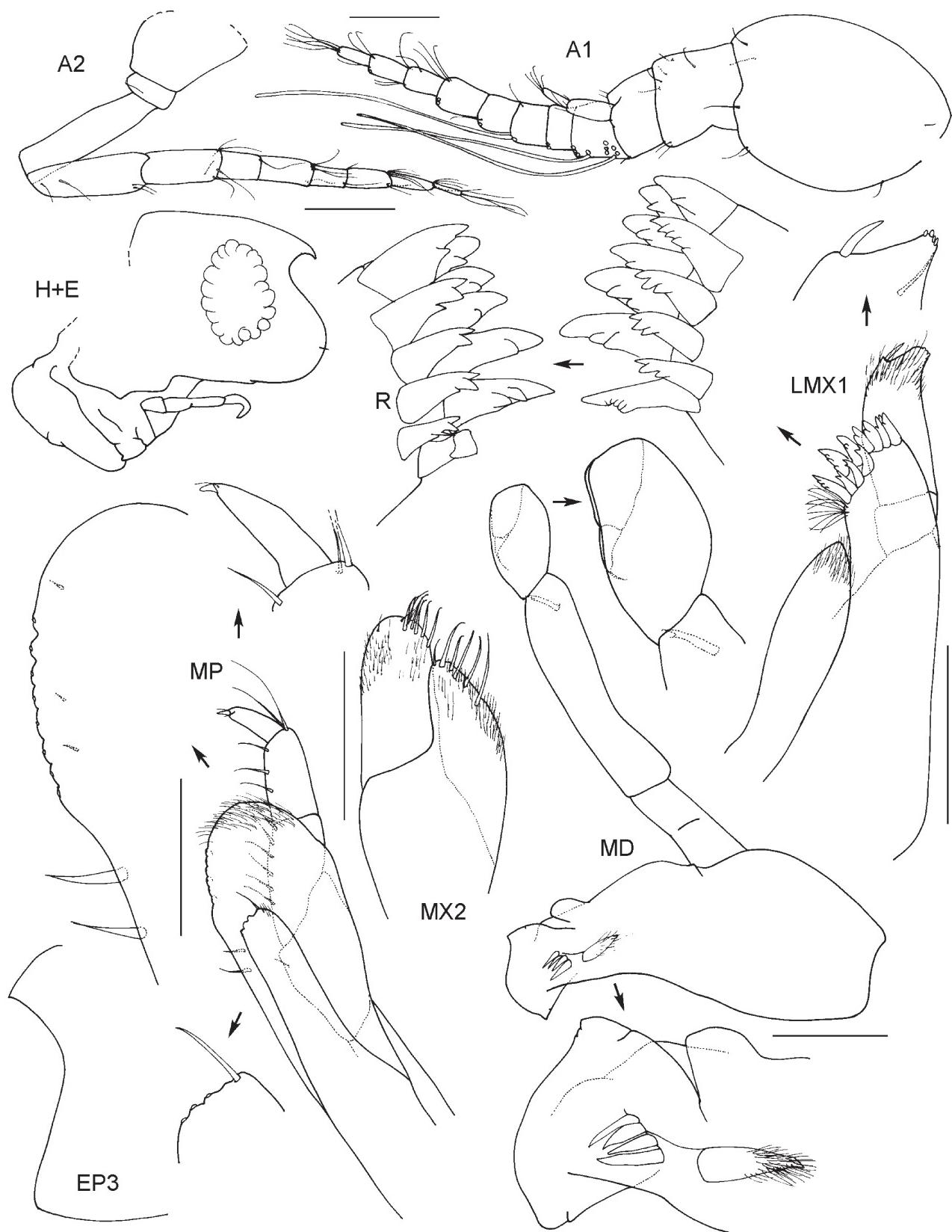
(Figs 14, 15)

**Type material.** Holotype, female, 2.7 mm, AM P.68869, off jetty at Green Island, Rottnest Island, Western Australia ( $32^{\circ}1'S\ 115^{\circ}30'E$ ), 1 m, brown alga on jetty pilings, R.T. Springthorpe, 21 December 1983. Paratype, male, 2.6 mm, AM P.68870, same locality information except mixed algal turf on rock.

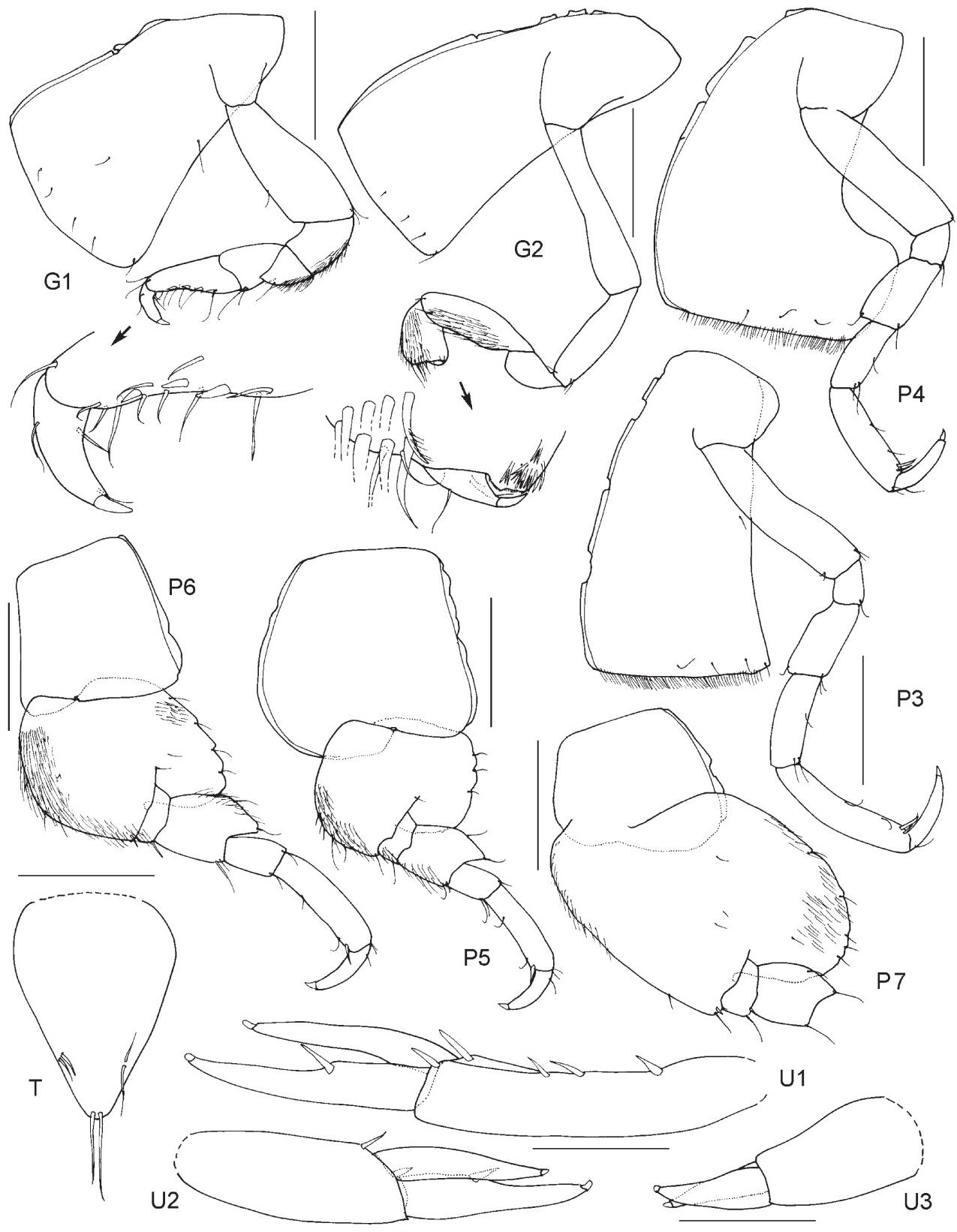
**Type locality.** Off jetty at Green Island, Rottnest Island, Western Australia ( $32^{\circ}1'S\ 115^{\circ}30'E$ ).

**Etymology.** Named for the collector.

**Diagnostic description.** Based on holotype female, 2.7 mm, AM P.68869. *Head lateral cephalic lobe broadly rounded*; eyes oval. Antenna 1 short to medium length; peduncular article 1 short, length  $1.25 \times$  breadth, without dorsal lobe; peduncular article 2 short,  $0.4 \times$  article 1; peduncular article 3 short,  $0.22 \times$  article 1; accessory flagellum short,  $0.25 \times$  primary flagellum, 2-articulate, article 1 short; primary flagellum 9-articulate, with weak 1-field callynophore, flagellum with aesthetascs. Antenna 2 flagellum 6-articulate. Mandible accessory setal row with 4 simple setae; molar reduced, represented by finely setose triangular flap; palp attached very slightly proximally; article 1 long, length  $2.2 \times$  breadth; article 3 slender, blade-like, with distal crease. Maxilla 1 outer plate broad, with 11 setal teeth, setal teeth of outer row with cusps in 1 row; palp 2-articulate, with robust setae on the apical margin. Maxilla 2 inner and outer plates broad; inner plate length  $0.7 \times$  outer plate. Labium outer lobe unknown. Maxilliped outer plate medium size, submarginal setae absent.



**FIGURE 14.** *Pseudambasia springthorpei* sp. nov., paratype, male, 2.6 mm, AM P.68870, Green Island, Rottnest Island, Western Australia. Scale bars: 0.1 mm.



**FIGURE 15.** *Pseudambasia springthorpei* sp. nov., paratype, male, 2.6 mm, AM P.68870, Green Island, Rottnest Island, Western Australia. Scale bars: G1-2 and P3-7, 0.2 mm; U1-3 and T, 0.1 mm.

Gnathopod 1 weakly subchelate; coxa anterior margin straight, anteroventral corner narrowly rounded, posterior margin slightly concave; carpus short, length  $1.5 \times$  breadth, shorter than  $(0.8 \times)$  propodus; propodus subtriangular, length  $2 \times$  breadth, palm extremely acute, margin slightly concave. Gnathopod 2 minutely

subchelate; carpus long, length  $3 \times$  breadth; palm transverse, with convex margin. Pereopod 5 coxa equilobate. Pereopod 6 coxa not lobate posteriorly; basis posterodistal corner produced beyond ischium, forming rounded lobe. Pereopod 7 basis expanded posteriorly, posterodistal margin rounded, posterodistal corner strongly produced, forming a large, broad lobe produced more than halfway along merus; merus moderately expanded posteriorly.

Epimeron 3 posteroventral corner narrowly rounded/subquadrate. Uropod 1 outer ramus slightly longer than inner ramus. *Uropod 2* outer ramus slightly longer than inner ramus; *inner ramus without constriction*. *Uropod 3* peduncle long, without dorsolateral flange; *rami* slender, *subequal in length*. *Telson* longer than broad, length  $1.4 \times$  breadth, *lateral margins converging distally, apical margin subacute*.

**Remarks.** *Pseudambasia springthorpei* is very similar to *P. kalaupapa* from Hawaii. They both have the mandibular palp attached slightly proximally, both have an apical robust seta on the margin of the maxilla 1 palp. They have very similar male first gnathopods sixth and seventh pereopods. The male first antenna has a weak callynophore (not present in *P. kalaupapa*), the rami of uropod 3 are subequal in length (outer longer than inner in *P. kalaupapa*), and the telson of *P. springthorpei* is apically subacute.

**Distribution.** Rottnest Island, Western Australia.

## Acknowledgements

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